



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/006,777	01/14/1998	CHRIS L. HOOGENBOOM	100-010	4131

7590 07/11/2002

CHRISTIE, PARKER & HALE, LLP  
P.O. BOX 7068  
OSAADENA, CA 91109-7068

EXAMINER

KWOH, JASPER C

ART UNIT PAPER NUMBER

2663

DATE MAILED: 07/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

16

# Office Action Summary

Application No.  
09/006,777

Applicant(s)  
Hoogenboom et al.

Examiner  
Jasper Kwok

Art Unit  
2663



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Apr 15, 2002
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-16, and 18-54 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-32 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16, 18-22, and 33-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Apr 15, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

Art Unit: 2663

## **DETAILED ACTION**

### ***Drawings***

1. The corrected or substitute drawings were received on 4/15/02. These drawings are approved.

### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 5, 7-10, 16, 18-20 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Ramamurthy et al.

Regarding claims 1 and 10, Ramamurthy et al. disclose a switch comprising a plurality of input ports (i.e. fig. 1, 100; input ports 1... M); a plurality of output ports (i.e. fig. 1, output lines 1.. M); and switch fabric (i.e. fig. 1, buffered switch, core switch bus, core switch LSI); wherein the output data stores on the output side are arranged to buffer data units (i.e. fig. 1, each output buffer is associated with a plurality of output data store; rectangles in the buffer) for delivery to output ports (i.e. fig. 1, output lines 1... M), and if the backlog reaches a particular level (i.e. col. 22, ll. 42-52, backlog occurs when the output buffer is full), the output control (fig 1, CAC, bandwidth allocator), to enforce a rate limitation (i.e. fig. 9, col. 22, ll. 50-53; monitor back pressure and control data flow), wherein the additional data units in violation of the rate limitation are filtered (i.e. col. 22, ll. 53-66; violation of rate and filtered corresponds to full buffer means congestion and cells are dropped).

Art Unit: 2663

Regarding claims 5, 7-9 and 16, 18-20 and 22, Ramamurthy et al. disclose a switch including when backlog falls, the output lifts the rate limitation (i.e. col. 22, ll. 50-54; no back pressure signal if buffer is not full because after congestion drops, it is inherent to start transmitting to output again at the prior uncongested bandwidth to try to maximize transmission rate); buffers are associated with both ports with distinct priority; and limitation is enforces at both ends (i.e. fig. 9, col. 22, ll. 50-54).

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 2-4, 11-15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramamurthy et al. in view of Hluchyj et al.

Ramamurthy et al. discloses input port (i.e. 100), but does not specifically disclose a priority for data units and using leaky bucket. However, Hluchyj designate a priority (i.e. fig. 4, col. 3, ll. 11-23) and high priorities (i.e. CLP=0) are not in violation while low priorities are (i.e. CLP=1) based on leaky bucket algorithm (i.e. 204). Therefore, it would have been obvious to an ordinary person skilled in the art at the time of the invention to include priorities and leaky bucket as taught by Hluchyj et al. with the method and switch of Ramamurthy et al. in order to regulate cell flow.

6. Claims 33, 37-42, 48-52 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramamurthy et al. in view of Shinohara.

Art Unit: 2663

Regarding claims 33 and 42, Ramamurthy et al. disclose a switch comprising a plurality of input ports (i.e. fig. 1, 100; input ports 1... M); a plurality of output ports (i.e. fig. 1, output lines 1.. M); and switch fabric (i.e. fig. 1, buffered switch, core switch bus, core switch LSI); wherein the data stores are arranged to buffer data units (i.e. figs 1 and 9, output buffers) for delivery to output ports (i.e. fig. 1, output lines 1... M), and if the backlog reaches a particular level (i.e. col. 22, ll. 42-52, backlog occurs when the output buffer is full), the output control (fig 1, CAC, bandwidth allocator), to enforce a rate limitation (i.e. fig. 9, col. 22, ll. 50-53; monitor back pressure and control data flow), wherein the additional data units in violation of the rate limitation are filtered (i.e. col. 22, ll. 53-66; violation of rate and filtered corresponds to full buffer means congestion and cells are dropped). Ramamurthy et al. does not specifically disclose output controls monitoring two or more data stores. However, Shinohara teaches output control (i.e. fig. 8, 3, 3a, 4) monitoring the backlog of buffered data units in two or more of said plurality of data stores (i.e. fig. 8, 2-1, 2-2, 2-3, 2-4). Therefore, it would have been obvious to an ordinary person skilled in the art at the time of the invention to include using the output controls to monitor the backlog of two or more buffers as taught by Shinohara with the method and apparatus of Ramamurthy et al. in order to conserve hardware by using controller to monitor the buffers an improve quality of service.

Regarding claims 37-41 and 48-52 and 54, Ramamurthy et al. disclose a switch including when backlog falls, the output lifts the rate limitation (i.e. col. 22, ll. 50-54; no back pressure signal if buffer is not full; therefore, after congestion drops, it is inherent to start transmitting to

Art Unit: 2663

output again at the prior uncongested bandwidth to try to maximize transmission rate); buffers are associated with both ports with distinct priority; limitation is enforced at both ends (i.e. fig. 9, col. 22, ll. 50-54).

7. Claims 34-36, 43-47 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramamurthy et al. in view of Shinohara as applied to claims 33 and 42 above, and further in view of Hluchyj et al.

Ramamurthy et al. discloses input port (i.e. 100), but does not specifically disclose a priority for data units and using leaky bucket. However, Hluchyj designate a priority (i.e. fig. 4, col. 3, ll. 11-23) and high priorities (i.e. CLP=0) are not in violation while low priorities are (i.e. CLP=1) based on leaky bucket algorithm (i.e. 204). Therefore, it would have been obvious to an ordinary person skilled in the art at the time of the invention to include priorities and leaky bucket as taught by Hluchyj et al. with the method and switch of Ramamurthy et al. in order to regulate cell flow.

***Allowable Subject Matter***

8. Claims 23-32 are allowed.

***Response to Arguments***

9. Applicant's arguments filed 4/15/00 have been fully considered but they are not persuasive.

Regarding claims 1 and 10, applicant asserts that none of the references shows output data stores on the output side of the switch fabric and output control monitor the backlog in one or

Art Unit: 2663

more of the stores. Examiner respectfully disagrees. It is clear from Ramamurthy that the output buffer includes data stores to buffer the incoming packets for output. Furthermore, the output control monitors at least one output buffer which includes at least one data store.

Regarding claims 33 and 42, applicant asserts that none of the cited references shows “a plurality of output ports, each output port operatively associated with a plurality of data stores” and an output control and controls are arranged to monitor in two or more data stores. Examiner respectfully disagrees. It is clear from Ramamurthy that the output ports are associated with plurality of data stores as explained above. Furthermore, the control monitors the output buffer which include stores from the output buffer and Shinohara teaches the use of one controller to monitor plurality of data stores. Moreover, the mere fact that a given structure is integral (such as one controller to one data store) does not preclude its consisting of various elements (such as other data stores). Therefore, the combination of the reference to make the controller a centralized controller is proper and the claims remain rejected.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

Art Unit: 2663

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jasper Kwoh whose telephone number is (703) 305-0101.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen, can be reached on (703) 308-5340.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

12. **Any response to this final action should be mailed to:**

**Box AF**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 872-9314, (for formal communications; please mark "EXPEDITED  
PROCEDURE")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal  
Drive, Arlington, VA., Sixth Floor (Receptionist).

Jasper Kwoh



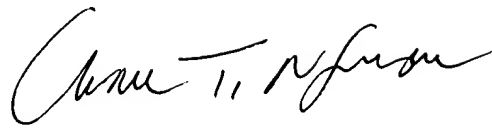


Application/Control Number: 09/006,777

Page 8

Art Unit: 2663

July 9, 2002

A handwritten signature in cursive script, appearing to read "Chau Nguyen".

CHAU NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800